

# Specifications



## Eaton 199890

Eaton Moeller® series P1 On-Off switch, 40 A, flush mounting, 3 pole, 1 N/O, 1 N/C, with black thumb grip and front plate

### General specifications

|                      |                                                                 |
|----------------------|-----------------------------------------------------------------|
| PRODUCT NAME         | Eaton Moeller® series P1 On-off switch                          |
| CATALOG NUMBER       | 199890                                                          |
| MODEL CODE           | P1-40/E/HI11                                                    |
| EAN                  | 4015082953317                                                   |
| PRODUCT LENGTH/DEPTH | 75 mm                                                           |
| PRODUCT HEIGHT       | 70 mm                                                           |
| PRODUCT WIDTH        | 49 mm                                                           |
| PRODUCT WEIGHT       | 0.183 kg                                                        |
| COMPLIANCES          | UKCA<br>CE                                                      |
| CERTIFICATIONS       | IEC/EN 60947<br>IEC/EN 60947-3<br>IEC/EN 60204                  |
| CATALOG NOTES        | Rated Short-time Withstand Current (Icw) for a time of 1 second |



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## Actuator

|                       |                  |
|-----------------------|------------------|
| <b>ACTUATOR COLOR</b> | Black            |
| <b>ACTUATOR TYPE</b>  | Short thumb-grip |

## Contacts

|                                                                |                                                                                         |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>CONTROL CIRCUIT RELIABILITY</b>                             | 1 failure per 100,000 switching operations statistically determined, at 24 V DC, 10 mA) |
| <b>NUMBER OF AUXILIARY CONTACTS (CHANGE-OVER CONTACTS)</b>     | 0                                                                                       |
| <b>NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)</b> | 1                                                                                       |
| <b>NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)</b>   | 1                                                                                       |

## Climatic environmental conditions

|                                                       |                                                                                |
|-------------------------------------------------------|--------------------------------------------------------------------------------|
| <b>AMBIENT OPERATING TEMPERATURE - MAX</b>            | 50 °C                                                                          |
| <b>AMBIENT OPERATING TEMPERATURE - MIN</b>            | -25 °C                                                                         |
| <b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX</b> | 40 °C                                                                          |
| <b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN</b> | -25 °C                                                                         |
| <b>CLIMATIC PROOFING</b>                              | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |

## Design verification

|                                                                                         |                                                                                                                                  |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>10.10 TEMPERATURE RISE</b>                                                           | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| <b>10.11 SHORT-CIRCUIT RATING</b>                                                       | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| <b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>                                              | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| <b>10.13 MECHANICAL FUNCTION</b>                                                        | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |
| <b>10.2.2 CORROSION RESISTANCE</b>                                                      | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>                         | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>       | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b> | Meets the product standard's requirements.                                                                                       |

|                                                                      |                                                                    |
|----------------------------------------------------------------------|--------------------------------------------------------------------|
| <b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>              | UV resistance only in connection with protective shield.           |
| <b>10.2.5 LIFTING</b>                                                | Does not apply, since the entire switchgear needs to be evaluated. |
| <b>10.2.6 MECHANICAL IMPACT</b>                                      | Does not apply, since the entire switchgear needs to be evaluated. |
| <b>10.2.7 INSCRIPTIONS</b>                                           | Meets the product standard's requirements.                         |
| <b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>                       | Does not apply, since the entire switchgear needs to be evaluated. |
| <b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>                        | Meets the product standard's requirements.                         |
| <b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>                        | Does not apply, since the entire switchgear needs to be evaluated. |
| <b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>        | Does not apply, since the entire switchgear needs to be evaluated. |
| <b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>             | Is the panel builder's responsibility.                             |
| <b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>                      | Is the panel builder's responsibility.                             |
| <b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>                      | Is the panel builder's responsibility.                             |
| <b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>                              | Is the panel builder's responsibility.                             |
| <b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b>      | Is the panel builder's responsibility.                             |
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b>            | 0 W                                                                |
| <b>HEAT DISSIPATION CAPACITY PDISS</b>                               | 0 W                                                                |
| <b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b>             | 1.9 W                                                              |
| <b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b> | 40 A                                                               |
| <b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>            | 0 W                                                                |

## Electrical rating

**RATED BREAKING  
CAPACITY AT 400/415 V  
(COS PHI TO IEC 60947-3)** 290 kA

**RATED BREAKING  
CAPACITY AT 660/690 V  
(COS PHI TO IEC 60947-3)** 130 kA

**RATED OPERATIONAL  
CURRENT (IE) AT AC-21,  
440 V** 40 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-23A,  
230 V** 40 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-23A,  
400 V, 415 V** 40 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-23A,  
690 V** 20 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-3,  
220 V, 230 V, 240 V** 30 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-3,  
380 V, 400 V, 415 V** 30 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-3,  
660 V, 690 V** 17 A

**RATED OPERATIONAL  
POWER AT AC-23A,  
220/230 V, 50 HZ** 11 kW

**RATED OPERATIONAL  
POWER AT AC-23A, 400 V,  
50 HZ** 22 kW

**RATED OPERATIONAL  
POWER AT AC-23A, 690 V,  
50 HZ** 18.5 kW

**RATED OPERATIONAL  
POWER AT AC-3, 380/400  
V, 50 HZ** 15 kW

**RATED OPERATIONAL  
POWER AT AC-3, 415 V, 50  
HZ** 15 kW

**RATED OPERATIONAL  
POWER AT AC-3, 690 V, 50  
HZ** 15 kW

**RATED OPERATIONAL  
VOLTAGE (UE) AT AC -  
MAX** 690 V

**RATED UNINTERRUPTED  
CURRENT (IU)** 40 A

**UNINTERRUPTED** Rated uninterrupted

## Features & functions

**FITTED WITH:** Black thumb grip and front plate

**NUMBER OF POLES** 3

|                |                                                             |
|----------------|-------------------------------------------------------------|
| <b>CURRENT</b> | current I <sub>u</sub> is specified for max. cross-section. |
|----------------|-------------------------------------------------------------|

## General information

|                                               |                                                                               |
|-----------------------------------------------|-------------------------------------------------------------------------------|
| <b>ACCESSORIES</b>                            | Auxiliary contact or neutral conductor fitted by user.                        |
| <b>DEGREE OF PROTECTION</b>                   | IP65                                                                          |
| <b>DEGREE OF PROTECTION (FRONT SIDE)</b>      | IP65                                                                          |
| <b>LIFESPAN, MECHANICAL</b>                   | 300,000 Operations                                                            |
| <b>MOUNTING METHOD</b>                        | Flush mounting                                                                |
| <b>MOUNTING POSITION</b>                      | As required                                                                   |
| <b>OPERATING FREQUENCY</b>                    | 50 Operations/h                                                               |
| <b>OVERVOLTAGE CATEGORY</b>                   | III                                                                           |
| <b>POLLUTION DEGREE</b>                       | 3                                                                             |
| <b>PRODUCT CATEGORY</b>                       | On-Off switch                                                                 |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b> | 6000 V AC                                                                     |
| <b>SAFE ISOLATION</b>                         | 440 V AC, Between the contacts, According to EN 61140                         |
| <b>SHOCK RESISTANCE</b>                       | 15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms |
| <b>SWITCHING ANGLE</b>                        | 90 °                                                                          |

## Switching capacity

|                    |                                                                                                                                                                                                                                               |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LOAD RATING</b> | 1.3 x I <sub>e</sub> (with intermittent operation class 12, 60 % duty factor)<br>1.6 x I <sub>e</sub> (with intermittent operation class 12, 40 % duty factor)<br>2 x I <sub>e</sub> (with intermittent operation class 12, 25 % duty factor) |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Short-circuit rating

|                                                     |                                      |
|-----------------------------------------------------|--------------------------------------|
| <b>RATED CONDITIONAL SHORT-CIRCUIT CURRENT (IQ)</b> | 80 kA                                |
| <b>RATED SHORT-TIME WITHSTAND CURRENT (ICW)</b>     | 0.64 kA<br>640 A, Contacts, 1 second |
| <b>SHORT-CIRCUIT PROTECTION RATING</b>              | 50 A gG/gL, Fuse, Contacts           |

## Terminal capacities

|                          |                                                                                                                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SCREW SIZE</b>        | M4, Terminal screw                                                                                                                                                                                                               |
| <b>TERMINAL CAPACITY</b> | 1 x (1 - 4) mm <sup>2</sup> , flexible with ferrules to DIN 46228<br>2 x (1 - 4) mm <sup>2</sup> , flexible with ferrules to DIN 46228<br>1 x 10 mm <sup>2</sup> with fork terminal<br>2 x 10 mm <sup>2</sup> with fork terminal |
| <b>TIGHTENING TORQUE</b> | 1.6 Nm, Screw terminals                                                                                                                                                                                                          |

## Resources

|                            |                                                                                                                                                          |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| BROCHURES                  | <a href="#">Brochure - T Rotary Cam switch and P Switch-disconnector</a><br><a href="#">P1-40 Switch-disconnectors brochure</a>                          |
| CATALOGUES                 | <a href="#">P Switch-disconnectors and T Rotary cam switches catalogue CA042001EN</a><br><a href="#">P1-40 Switch-disconnectors</a>                      |
| DECLARATIONS OF CONFORMITY | <a href="#">eaton-main-switch-declaration-of-conformity-eu250806en.pdf</a><br><a href="#">eaton-main-switch-declaration-of-conformity-uk251289en.pdf</a> |
| ECAD MODEL                 | <a href="#">ETN.199890.edz</a>                                                                                                                           |
| INSTALLATION INSTRUCTIONS  | <a href="#">eaton-switch-disconnector-p1-flush-mounting-il03802003z.pdf</a>                                                                              |
| INSTALLATION VIDEOS        | <a href="#">Eaton's P Switch-disconnectors used in a factory</a>                                                                                         |
| MCAD MODEL                 | <a href="#">eaton-erd-mcad-drawings-p1-e-hi11.dwg</a><br><a href="#">eaton-erd-mcad-3d-models-p1-e-hi11.stp</a>                                          |
| MULTIMEDIA                 | <a href="#">Unboxing Video P140</a>                                                                                                                      |

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**PROJECT NAME:**

**PROJECT NUMBER:**

**PREPARED BY:**

**DATE:**

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